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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,937	11/18/2003	Hyun-Su Yoon	45975	3717

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EXAMINER

LE, NHAN T

ART UNIT PAPER NUMBER

2618

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,937

Applicant(s)

YOON, HYUN-SU

Examiner

Nhan T. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/31/04; 04/09/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims are 1-2, 4-14, 16-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Louis et al (US 2002015392).

As to claims 1, 13, Louis teaches a power amplification apparatus for amplifying a baseband signal with a peak-to-average power ratio (PAR), comprising: a main amplification part (see fig. 3, number 302, paragraphs 0025-0027) for detecting envelope values of an input baseband signal, reducing a peak signal having an envelope value more than a predetermined value to a signal having the predetermined value or less, and amplifying the reduced signal; an error correction amplification part (see fig. 3, number 304, paragraphs 0025-0027) for amplifying an error signal indicating a difference between the baseband signal and the reduced signal; and a summing part (see fig. 3, number 326, paragraphs 0033-034) for combining the amplified reduced signal and the amplified error signal.

As to claim 2, 14, Louis teaches the power amplification apparatus wherein the main amplification part further comprises: a quadrature modulator (see fig. 3, number

310, paragraphs 0025-0027) for modulating the reduced signal; and a power amplifier (see fig. 3, number 312, paragraphs 0025-0027) for amplifying the quadrature modulated signal.

As to claims 4, 5, Louis teaches the power amplification apparatus wherein the main amplification part further comprises: a delay device (see fig. 3, number 318, paragraph 0026) for delaying the baseband signal and providing the delayed baseband signal to the peak reduced signal generator and a delay device for delaying the peak reduced signal by a predetermined time and providing the delayed peak reduced signal to the quadrature modulator (see fig. 3, number 318, paragraph 0026).

As to claims 6, 16, Louis teaches the power amplification apparatus wherein the error correction amplification part further comprises: a quadrature modulator (see fig. 3, number 328, paragraph 0029) for modulating the error signal; and a power amplifier (see fig. 3, number 330, paragraphs 0029) for amplifying the modulated signal.

As to claims 7, 17, Louis teaches the power amplification apparatus wherein the error correction amplification part further comprises: an error compensator (see fig. 3, number 328, paragraph 0029) for compensating for amplitude, phase and delay of the quadrature modulated error signal and providing a result of the compensation to the power amplifier.

As to claims 8, 18, Louis teaches the power amplification apparatus wherein the error correction amplification part comprises: an error signal generator (see fig. 3, number 324, paragraphs 0028-0029) for subtracting the reduced signal from the baseband signal to generate the error signal.

As to claim 9, Louis teaches the power amplification wherein the error correction amplification part further comprises: a delay device (see fig. 3, number 344, paragraph 0033) for delaying the baseband signal and providing the delayed baseband signal to the error signal generator.

As to claims 10, 19, Louis teaches the power amplification apparatus wherein the predetermined value is decided so that a PAR of the baseband signal is reduced and hence an error rate and spectral regrowth due to the PAR can be minimized (see paragraphs 0033-0036).

As to claims 11, 20, Louis teaches the power amplification apparatus wherein the combined signal from the summing part is filtered in a radio frequency band to be transmitted and the filtered signal is transmitted through an antenna (see fig. 3, number 321, paragraphs 0030-0031).

As to claims 12, 21, Louis teaches the power amplification apparatus wherein the error correction amplification part comprises: a delay device (see fig. 3, number 318, paragraph 0026) for delaying the baseband signal; an error signal generator (see fig. 3, number 324, paragraphs 0028-0029) for subtracting the reduced signal from the delayed baseband signal to generate the error signal; a quadrature modulator (see fig. 3, number 310, paragraphs 0025-0027) for modulating the error signal and generating a quadrature modulated signal in a radio frequency band; an error compensator (see fig. 3, number 328, paragraph 0029) for compensating phase and delay of the quadrature modulated signal so that an amplification characteristic difference between the main amplification part and the error correction amplification part can be compensated; and a

power amplifier a power amplifier (see fig. 3, number 330, paragraphs 0029) for amplifying the compensated signal and outputting the second amplified signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louis et al (US 2002015392) in view of Alderton (US 6,034,573).

As to claims 3, 15, Louis fails to teach wherein the main amplification part comprises: an envelope detector for detecting an envelope value from the baseband signal; a scale factor decider for deciding a scale factor for clipping the baseband signal by a difference between the detected envelope signal and a predetermined reference value when the detected signal envelope is above the predetermined reference value; and a peak reduced signal generator for multiplying the baseband signal by the scale factor and generating the reduced signal. Alderton teaches an envelope detector (see fig. 5, number 529, col. 7, lines 8-29) for detecting an envelope value from the baseband signal; a scale factor decider (see fig. 5, number 530, col. 7, lines 8-29) for deciding a scale factor for clipping the baseband signal by a difference between the detected envelope signal and a predetermined reference value when the detected signal envelope is above the predetermined reference value; and a peak reduced signal generator (see fig. 5, number 531, col. 7, lines 8-29) for multiplying the baseband signal

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by the scale factor and generating the reduced signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Alderton into the system of Louis in order to correct the scaling factor.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gentzler (US 6,211,733) teaches predistortion compensation for a power amplifier.

Wessel (US 6,646,501) teaches power amplifier configuration.

Vanhorn et al (US 5,867,064) teaches method and apparatus for improving intermodulation in feed-forward amplifier.

Edison et al (US 6,242,975) teaches envelope peak and through limiting to improve amplifier frequency and distortion characteristic.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

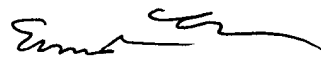
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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